

CLAIMS:

1. A method for fabricating a fiber array, the method comprising:
providing a substrate having a plurality of guides formed therein each penetrating through the substrate, the substrate having one or more via holes in fluid communication with the plurality of guides;
disposing a plurality of optical fibers with respective guides, each of the optical fibers being placed with a corresponding one of the guides; and
injecting an adhesive into the one or more via holes, the adhesive fixing the optical fibers in the respective guides of the substrate.
2. The method of claim 1, wherein each guide is in communication with a corresponding via hole.
3. The method of claim 1, wherein each via hole is offset from the plurality of guides.
4. The method of claim 1, wherein the one or more via holes are disposed on one side of the substrate.
5. The method of claim 1, wherein the one or more via holes are disposed on two sides of the substrate.
6. The method of claim 1, wherein each guide of the plurality of guides is a through-hole.
7. The method of claim 1, wherein the substrate comprises a lower substrate having the plurality of guides and an upper substrate.
8. The method of claim 7, wherein the upper substrate includes a guide corresponding to a guide of the plurality of guides on the lower substrate.
9. The method of claim 1, wherein the method further comprises:
adjusting positions of each optical fiber to be aligned in accordance with a predetermined optical alignment before injecting the adhesive.

10. The method of claim 9, wherein the predetermined optical alignment is determined by the configuration of the guides formed in the substrate.

11. The method of claim 10, wherein the guides formed in the substrate are configured in a V-groove shape on a lower portion thereof.

12. The method of claim 11, wherein the guides formed in the substrate are configured in a V-groove shape on a lower and upper portion thereof.

13. The method of claim 12, wherein the substrate includes a lower and an upper substrate, wherein at least one of the lower and upper substrates includes the guides configured to align the optical fibers in the predetermined optical alignment.

14. The method of claim 1, wherein the one or more via holes is in fluid communication with a channel having fluid communication with the plurality of guides.

15. The method of claim 1, wherein the adhesive is an epoxy.

16. The method of claim 1, wherein the adhesive is a thermally cured adhesive.

17. The method of claim 1, wherein the adhesive is a glass material having a melting temperature less than that of the optical fibers comprising glass.

18. The method of claim 1, wherein the adhesive is a solder.

19. The method of claim 18, wherein the optical fibers, the plurality of guides, and the one or more via holes are coated with a metal coating.

20. The method of claim 1, wherein the one or more via holes are disposed in at least one of a front face and a rear face of the substrate.

21. An array of a plurality of optical fibers, comprising:
a substrate having a plurality of guides formed therein, the substrate having one or
more via holes in fluid communication with the plurality of guides;
the plurality of optical fibers each disposed within respective guides, each of the
optical fibers being placed within a corresponding one of the guides in the substrate; and
adhesive material surrounding each of the optical fibers in a corresponding guide to
fix the position of each optical fiber, the adhesive being applied through the one or more via
holes.

22. The array of claim 21, wherein each guide is in communication with a
corresponding via hole.

23. The array of claim 21, wherein each via hole is offset from the plurality of guides.

24. The array of claim 21, wherein the one or more via holes are disposed on one side
of the substrate.

25. The array of claim 21, wherein the one or more via holes are disposed on two
sides of the substrate.

26. The array of claim 21, wherein each guide of the plurality of guides is a through-
hole.

27. The array of claim 21, wherein the substrate comprises a lower substrate having
the plurality of guides and an upper substrate.

28. The array of claim 27, wherein the upper substrate includes a guide
corresponding to a guide of the plurality of guides on the lower substrate.

29. The array of claim 21, wherein the one or more via holes is in fluid
communication with a channel having fluid communication with the plurality of guides.

30. The method of claim 21, wherein the adhesive is an epoxy.
31. The method of claim 21, wherein the adhesive is a thermally cured adhesive.
32. The method of claim 21, wherein the adhesive is a glass material having a melting temperature less than that of the optical fibers comprising glass.
33. The method of claim 21, wherein the adhesive is a solder.
34. The method of claim 33, wherein the optical fibers, the plurality of guides, and the one or more via holes are coated with a metal coating.
35. The method of claim 21, wherein the one or more via holes are disposed in at least one of a front face and a rear face of the substrate.
36. A method for fabricating a fiber array, the method comprising:
 - providing a first substrate having a plurality of guides formed therein each guide of the plurality of guides penetrating through the first substrate,
 - disposing a plurality of optical fibers with respective guides, each optical fiber being placed in correspondence with a respective guide;
 - disposing a second substrate on the plurality of fibers, the second substrate having one or more via holes in fluid communication with the plurality of guides;
 - injecting an adhesive into the one or more via holes; and
 - inserting a mechanical plunger into one or more via holes to force the adhesive through the via holes and through out the fiber array.
37. The method of claim 36 wherein the adhesive is an epoxy.
38. The method of claim 36 wherein the adhesive is a thermally cured adhesive.
39. The method of claim 36, wherein the adhesive is a glass material having a melting temperature less than that of the optical fibers comprising glass.
40. The method of claim 36, wherein the adhesive is a solder.

41. The method of claim 40, wherein the optical fibers, the plurality of guides, and the one or more via holes are coated with a metal coating.

42. The method of claim 36, wherein the one or more via holes are disposed in at least one of a front face and a rear face of the substrate.

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